

D.P.U. 92-270

Petition of New England Power Company, under G.L. c. 40A, § 3,
seeking exemption of proposed electric substation facilities from the
zoning ordinance of the City of Beverly.

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FOR: NEW ENGLAND POWER COMPANY
Petitioner

I. INTRODUCTION

On December 15, 1992, New England Power Company ("NEPCo" or "Company"), pursuant to G.L. c. 40A, § 3, filed a petition with the Department of Public Utilities ("Department") for an exemption from the zoning ordinance of the City of Beverly. In its petition, the Company states that it seeks the zoning exemption in order to construct and operate proposed additions to its existing East Beverly substation No. 51 ("East Beverly substation" or "substation"), which is located on a Company-owned, 3.6-acre parcel of land on the easterly side of Boyles Street in Beverly, Massachusetts.¹ The petition was docketed as D.P.U. 92-270.²

The affected parcel of land is zoned for residential use, and does not permit the uses proposed by the Company (Exhs. NEP-1, at 2; DPU-1).³ Accordingly, the Company requested exemptions from the following sections of Chapter 29 of the Beverly zoning ordinance: (1)

¹ In New England Power Company, D.P.U. 19562 (1979), the Department approved a proposed two-stage upgrade of the East Beverly substation.

² The Company's responses to the Department's information requests DPU 1-1 through DPU 1-11 are hereby marked for identification as Exhibits DPU-1 through DPU-11, and, on the Department's own motion, moved into evidence.

³ The Company indicated that the affected parcel is located in an R-22, One-Family, Suburban Density Residential District (Exhs. NEP-1, at 3; NEP-5, at 26-38).

Section 29-9C, Common Permitted Uses in an R-22 One-Family Residential District, Uses by Special Permit; and (2) Section 29-27C, Board of Appeals, Special Permit Uses (Exhs. NEP-5; DPU-1).

NEPCo is a public service corporation and an electric company as defined under G.L. c. 164, § 1, and is authorized to generate, transmit, purchase, sell, and distribute electricity (Exh. NEP-1, at 1).⁴

II. PROCEDURAL HISTORY

Pursuant to notice duly issued, the Department conducted a public hearing in Beverly on December 7, 1993 to afford interested persons an opportunity to be heard. In addition, the Department held one evidentiary hearing. No petitions for leave to intervene were filed.

In support of its petition, the Company sponsored the testimony of three witnesses: Robert D. Sheridan, district planning engineer for the North Shore District at Massachusetts Electric Company; Sergey Goldgaber, engineer in the distribution substation engineering department at New England Power Service Company; and George Cook, senior laboratory technician at NEPCo. Area residents raised concerns regarding noise impacts, visual impacts, the potential for increased power flows through the substation, and the likelihood of relocating

⁴ NEPCo is an affiliate of Massachusetts Electric Company, which provides retail electric service to customers in Beverly and the surrounding communities.

transmission and distribution lines in and around the substation (See Tr. at 24-39, 46-67, 84-92).⁵

The evidentiary record includes 16 exhibits and four responses to record requests. The Department entered eleven exhibits into the record. The Company entered five exhibits into the record.

III. STANDARD OF REVIEW

In its petition for a zoning exemption, the Company seeks approval under G.L. c. 40A, §3, which, in pertinent part, provides:

Land or structures used, or to be used by a public service corporation may be exempted in particular respects from the operation of a zoning ordinance or by-law if, upon petition of the corporation, the [D]epartment of [P]ublic [U]tilities shall, after notice given pursuant to section eleven and public hearing in the town or city, determine the exemptions required and find that the present or proposed use of the land or structure is reasonably necessary for the convenience or welfare of the public....

Under this section, the Company first must qualify as a public service corporation (see Save the Bay, Inc. v. Department of Public Utilities, 366 Mass. 667 (1975)), and establish that it requires an exemption from the local zoning by-laws. The Company then must demonstrate that the present or proposed use of the land or structure is

⁵ The testimony by area residents at the public hearing was presented as unsworn testimony. Therefore, such testimony cannot be considered as evidence in this case.

reasonably necessary for the public convenience or welfare.

In determining whether a company qualifies as a "public service corporation" for purposes of G.L. c. 40A, § 3, the Supreme Judicial Court has stated:

among the pertinent considerations are whether the corporation is organized pursuant to an appropriate franchise from the State to provide for a necessity or convenience to the general public which could not be furnished through the ordinary channels of private business; whether the corporation is subject to the requisite degree of governmental control and regulation; and the nature of the public benefit to be derived from the service provided.

Save the Bay, supra, at 680.

In determining whether the present or proposed use is reasonably necessary for the public convenience or welfare, the Department must balance the interests of the general public against the local interest. Id. at 685-686; Town of Truro v. Department of Public Utilities, 365 Mass. 407 (1974). Specifically, the Department is empowered and required to undertake a "broad and balanced consideration of all aspects of the general public interest and welfare and not merely [make an] examination of the local and individual interests which might be affected." New York Central Railroad v. Department of Public Utilities, 347 Mass. 586, 592 (1964). When reviewing a petition for a zoning exemption under G.L. c. 40A, §3, the Department is empowered and required to consider the public effects of the requested exemption in

the State as a whole and upon the territory served by the applicant. Id.; Save the Bay, supra, at 685.

With respect to the particular site chosen by a petitioner, G.L. c. 40A, § 3 does not require the petitioner to demonstrate that its preferred site is the best possible alternative, nor does the statute require the Department to consider and reject every possible alternative site presented. Martorano v. Department of Public Utilities, 401 Mass. 257, 265 (1987); New York Central Railroad, 347 Mass. at 591; Wenham v. Department of Public Utilities, 333 Mass. 15, 17 (1955). Rather, the availability of alternative sites, the efforts necessary to secure them, and the relative advantages and disadvantages of those sites are matters of fact bearing solely upon the main issue of whether the preferred site is reasonably necessary for the convenience or welfare of the public. Id.

Therefore, when making a determination as to whether a petitioner's present or proposed use is reasonably necessary for the public convenience or welfare, the Department examines (1) the present or proposed use and any alternatives identified (see Massachusetts Electric Company, D.P.U. 92-232, at 17-18 (1993); Tennessee Gas Pipeline Company, D.P.U. 92-261, at 21-22 (1993) ("1993 Tennessee Gas"); Tennessee Gas Pipeline Company, D.P.U. 85-207, at 18-20 (1986) ("1986 Tennessee Gas")); (2) the need for, or public benefits of, the

present or proposed use (see Massachusetts Electric Company, supra, at 17-18; 1993 Tennessee Gas, supra, at 21-26; 1986 Tennessee Gas, supra, at 6-9); and (3) the environmental impacts or any other impacts of the present or proposed use (see Massachusetts Electric Company, supra, at 18; 1993 Tennessee Gas, supra, at 27-29; 1986 Tennessee Gas, supra, at 20-25).

After examining these three issues, the Department balances the interests of the general public against the local interest and determines whether the present or proposed use is reasonably necessary for the convenience or welfare of the public.⁶

IV. DESCRIPTION

A. Need for the Proposed Project

⁶ In addition, the Massachusetts Environmental Policy Act provides that "[a]ny determination made by an agency of the commonwealth shall include a finding describing the environmental impact, if any, of the project and a finding that all feasible measures have been taken to avoid or minimize said impact." G.L. c. 30, § 61. Pursuant to 301 C.M.R. § 11.01(3), these findings are necessary when an Environmental Impact Report is submitted by a company to the Secretary of Environmental Affairs, and should be based on such Environmental Impact Report. Where an Environmental Impact Report is not required, G.L. c. 30, § 61, such findings are not necessary. 301 C.M.R. § 11.01(3).

No Environmental Notification Form is required for the proposed substation upgrade, and as such, no Environmental Impact Report or subsequent findings relative to G.L. c. 30, § 61, are required (Exh. DPU-6).

The Company's witness, Mr. Sheridan, testified that the proposed substation upgrade would improve reliability in the Beverly area and, accordingly, is reasonably necessary for the convenience and welfare of the public (Exhs. NEP-3, at 4; DPU-3; DPU-8). Mr. Sheridan testified that a 1989 Cape Ann Distribution and Supply Study ("Cape Ann Study") identified the need for the proposed project based on its conclusion that area loading⁷ exceeded the firm rating of the 23 kilovolt ("kV") system (Exh. NEP-3, at 2). Mr. Sheridan stated that, since area load growth has slowed since the issuance of the Cape Ann Study, the Company undertook a review of the Cape Ann Study, which it completed in November of 1993 (id.). According to Mr. Sheridan, the results of the review indicate that, although area loading has declined, winter peak loading continues to exceed the firm rating of the 23 kV system for a single contingency and, accordingly, the proposed substation upgrade is still necessary (id.).

Mr. Sheridan testified that the East Beverly substation is presently supplied by two 115 kV tap lines, one of which is overhead and one of

⁷ In response to a Department record request, NEPCo stated that it still seeks 115 kV transmission facilities located in the vicinity of the Gloucester load center as a long-term solution to previous reliability problems cited in Energy Facilities Siting Council Docket 86-24 (see exhibit HO-C-2, volume 2.) (Exh. DPU-11). Further, NEPCo stated that the proposed East Beverly substation upgrade would not eliminate the need for future 115 kV facilities in the Gloucester area, only defer their in-service date (id.).

which is underground (id. at 2, exh. RDS-1). Mr. Sheridan stated that a portion of the 115 kV supply power is presently stepped down to 23 kV power at the East Beverly substation via two 25 megavoltampere ("MVA") transformers ("T1" and "T2"), and supplies four 23 kV sub-transmission lines⁸ that extend to and supply other distribution substations in Beverly and throughout the Cape Ann area (id.). Mr. Sheridan further stated that, in order to supply local distribution lines, a portion of the 23 kV power is stepped down again to 13.2 kV power at the East Beverly substation (id.).

Mr. Sheridan described two scenarios under which the present facilities at the East Beverly substation would be inadequate to ensure reliable peak-load electric service to the Company's customers in the Beverly and Cape Ann area. Under the first scenario, the loss of either transformer T1 or T2, the area's winter peak load exceeds the firm capabilities of the 23 kV system (id., at 2; Tr. at 93). According to Mr. Sheridan, the 65.5 MVA firm capability of the 23 kV system is comprised of the emergency rating of one East Beverly transformer, either T1 or T2, plus manually operated back-up diesel generation at the Gloucester substation No. 24 (Exh. NEP-3, at 2-3). Mr. Sheridan testified that the 65.5 MVA firm capability of the 23 kV system was

⁸ NEPCo identified the four 23 kV sub-transmission lines as #2324, 2325, 2362, and 2363 (Exh. NEP-3, at 2, exh. RDS-2).

exceeded in December 1992 when combined load reached 66.2 megawatts ("MW") (Tr. at 94). Mr. Sheridan noted that the Company has placed in service a procedure known as relaying that will de-energize the 2362 line from the East Beverly substation to North Beverly substation No. 18 in the event that load on either T1 or T2 exceeds their emergency rating (Exh. NEP-3, at 3). Mr. Sheridan observed that if the 2362 line is de-energized in this manner, there will be an outage for 3,467 customers until automatic switching picks up the load from another source (id.).

Under the second scenario, i.e., the loss of the overhead M-191 115 kV supply line, transformer T1 and East Beverly transformer T20 would be de-energized (id.). Mr. Sheridan explained that under this second scenario the Company plans to back-up the 23 MW load served by transformer T20 by supplying a back-up transformer via the 2363 line from East Beverly (id.; Tr. at 95-96). In this event, the 23 MW load will be placed on the remaining East Beverly transformer T2 and the 2362 line will be de-energized, again resulting in an outage for the 2362 line customers (Exh. NEP-3, at 3). Mr. Sheridan noted that even after dropping the 2362 line, transformer T2 will still exceed its emergency rating by as much as 7.9 MVA under this scenario (id.; Tr. at 96).

B. The Proposed Project and Alternatives

NEPCo requests a zoning exemption from the Department to

upgrade the existing East Beverly substation, through the construction, maintenance, and operation of additions ("proposed substation upgrade") (Exh. NEP-1, at 1-2, exh. B).⁹ The Company stated that the proposed substation upgrade would consist of: (1) the replacement of the two existing 25 MVA power transformers T1 and T2 with two low-noise transformers rated for 50 MVA each; (2) repositioning of an existing sound baffling wall; and (3) if necessary, repavement of the existing driveway following construction (id., at 2; NEP-3, at 3).

The Company indicated that, following Department approval, approximately two years would be required to complete construction of the proposed substation upgrade, including up to three months to initiate the order of materials, up to twelve months of lead time for delivery of the two 50 MVA transformers and up to nine months for actual construction of the proposed substation upgrade (Tr. at 21-22). The Company's witness, Sergey Goldgaber, stated that the construction portion of the proposed substation upgrade would occur in three steps: (1) removal of the old transformers; (2) replacement of the existing transformer foundations to support the new, heavier transformers; and

⁹ The Company indicated that the East Beverly substation is situated on a parcel of land totalling 3.6 acres, of which 2.1 acres would be affected by the proposed substation upgrade (Exh. NEP-1, exh. B). The Company further indicated that the remaining 1.5-acre segment had been previously exempted in one or more Department proceedings (id.) (see also Note 1).

(3) construction of an oil collection device around the foundations of each new transformer (id. at 20-21).

The Company explained that the Cape Ann Study focused solely on increasing the power handling capacity of the East Beverly substation at the transformer level and offered two approaches to achieve such an increase, including the proposed substation upgrade (Exh. NEP-3, at 3). Mr. Sheridan testified that the proposed substation upgrade would increase the emergency rating of the East Beverly substation from 65.5 MVA to 95 MVA, which, according to Mr. Sheridan, would be sufficient to cover either scenario described in Section IV.A, supra (Tr. at 96). The Company stated that the proposed substation upgrade was selected based on reliability and the achievement of superior transformer noise mitigation (Exh. NEP-3, at 3).¹⁰

Mr. Sheridan testified that the alternative to the Company's proposal would require the addition of one new 50 MVA low-noise transformer while paralleling the two existing 25 MVA transformers at the East Beverly substation (Exh. NEP-3, at 3). Mr. Sheridan testified, however, that the existing 25 MVA transformer T2 has experienced

¹⁰ The Company stated that the replacement of both transformer T1 and T2 was estimated to cost \$130,000 more than the alternate plan in 1989 dollars (Exh. NEP-3, at 3).

multiple operating problems, including leaks of the internal insulating fluid (id.; Tr. at 73-74). Mr. Sheridan further testified that, because the proposed 50 MVA replacement transformers would be built to low noise specifications, this option was considered superior to the alternative approach of paralleling the problematic transformer T2 with the other existing 25 MVA transformer T1 (Exh. NEP-3, at 3).

C. Impacts of the Proposed Project

In accordance with its responsibility to undertake a broad and balanced consideration of all aspects of the general public interest and welfare, the Department examines the impacts associated with the proposed project to identify any significant impacts that would likely occur during construction and operation of the proposed substation upgrade.

1. Construction and Traffic

NEPCo stated that every consideration would be given to keep construction at the East Beverly substation within normal working hours, but added that occasional weekend work could be required (Tr. at 22).

NEPCo acknowledged that during construction, the abutters may witness an intermediate level of increase in normal traffic flow similar to that which would occur during the construction of residential housing (id. at 21-22). NEPCo stated that there would be some

construction equipment (e.g., a cement truck and a crane) moving in and out of the substation property, and added that construction itself would last up to nine months (id.).

2. Electric and Magnetic Fields ("EMF")

NEPCo stated that the proposed substation upgrade is not expected to have any immediate impact on magnetic field levels in the vicinity of the East Beverly substation (Exhs. NEP-3, at 4; DPU-4). Mr. Sheridan stated that the new 50 MVA transformers are being installed to accommodate contingency loading in the area, and added that normal loading would not be affected, nor would the proposed substation upgrade involve the relocation of any of the transmission or distribution lines in the area (id.). Nevertheless, the Company stated that an EMF study examining typical existing magnetic field levels was conducted (Exh. DPU-4).

The EMF study identified ranges of magnetic field levels at different locations in and around the substation property reflecting both typical levels measured under normal loading conditions and estimated maximum values under emergency loading conditions (Exh. DPU-4, attach.). The results of the study indicated that, around the perimeter of the East Beverly substation property boundary, magnetic field levels under normal loading conditions measured between less

than one milligauss ("mG")¹¹ and 36 mG, while calculations of maximum expected magnetic field levels under emergency loading conditions at the same locations ranged between less than 1 mG and 110 mG (id.). The study indicated that the highest magnetic field level calculated was for the entry point of the 115 kV underground transmission line at the East Beverly substation, and that a maximum value of 28 mG was calculated for the entry points of the distribution lines located on the east side of the substation (id.). However, the study further indicated that measurements and calculations of magnetic field levels for perimeter locations adjacent to the nearest residences were well below the maximum values, ranging from less than 1 mG to approximately 12 mG (id.).

In response to abutter concerns regarding the likelihood of increased power flows through the East Beverly substation, Mr. Sheridan testified that NEPCo presently has no plans to reroute any of the transmission or distribution lines entering into, or leaving from, the East Beverly substation and concluded that any increase in electrical loading through the substation would be due to increased customer demand (Tr. at 29). Mr. Sheridan further testified that the load in the affected area is forecast to increase at a rate of

¹¹ Magnetic field levels are expressed in units of "milligauss" or "mG."

approximately one percent per year (id. at 28-29).

3. Noise

NEPCo indicated that there are currently five power transformers in operation at the East Beverly substation (Exh. NEP-4, at 1). NEPCo provided two sound level surveys¹² that assess the impact of the proposed project on the nearest residences to the substation (id. att.; DPU-RR-3; Exh. DPU-4). The most recent sound level survey ("sound survey") contained calculations of transformer noise levels at the four residences closest to the East Beverly substation both before and after the proposed substation upgrade (DPU-RR-3, at 7; Exh. NEP-2, attached exh. B).

The sound survey estimated ambient nighttime sound levels of 27-30 decibels¹³ ("dB" or "dBA")¹⁴ in the vicinity of the East Beverly

¹² NEPCo provided an updated sound level survey dated March 1994, prepared by Acentech Incorporated of Cambridge, Massachusetts (DPU-RR-3). The updated sound level survey was prepared at the direction of NEPCo in response to abutter and Department concerns that were raised at the public hearing regarding the validity of the earlier Company-prepared sound level survey, dated January 30, 1992 (Tr. at 76-79).

The Department notes that, because the overall results of the updated sound survey are consistent with the conclusions of the earlier Company-prepared sound survey, only the results of the updated sound survey will be considered in the course of this proceeding.

¹³ The term "decibel(s)" is a unit of measure of sound pressure (Tr. at 24).

substation (DPU-RR-3, at 7). The sound survey concluded that, because transformer noise is currently noticeable in the community during certain times,¹⁵ the proposed replacement of the two 25 MVA transformers with two 15 dB reduced-noise, 50 MVA transformers would reduce the overall noise¹⁶ associated with the substation (id. at 2). The calculated reductions in transformer noise levels at the nearest residences, as a result of the proposed substation upgrade, ranged from 6 to 11 dBA without operation of the cooling fans (DPU-RR-3, at 7). The sound survey added that the expected 6 to 11 dBA reduction in

¹⁴(...continued)

¹⁴ The designation "dBA" refers to sound levels measured or calculated in decibels, the magnitude of which has been adjusted to the simulated response of the human ear, and referred to as an A-weighted value (DPU-RR-3, at A-3).

¹⁵ NEPCo, in response to concerns voiced by an abutter at the public hearing regarding transformer fan noise, submitted a letter to the Department indicating that subsequent Company inspection of the fans found no mechanical defects (DPU-RR-2).

¹⁶ The sound study indicated that the overall noise produced by the affected transformers contains both tonal and broadband noise components (DPU-RR-3, at 4). At the East Beverly substation, transformer tones were noted at even multiples of the 60 cycles per second power line frequency of the transformer's 115 kV supply power (e.g., 120, 240, 360, 480 cycles per second), with the strongest tones typically at 360, 600, 720, and 840 cycles per second, plus broadband noise between these tones as a result of cooling fan operation (id.).

The sound study further indicated that reducing the substation sound level at the nearest residence by 6 dBA is similar to doubling the distance from the substation to the residence (id. at 6).

tonal transformer noise, following the proposed substation upgrade, is significant and should be noticeable to area residents (id. at 6).

The sound survey noted that the noise levels from the fans on the new transformers are expected to be lower than the noise levels from the fans used on the existing 25 MVA transformers (id.). During his testimony, Mr. Goldgaber stated that transformer cooling fans are turned on in stages as necessary and added that the reduced noise transformers would be quieter during all stages of operation as compared to the standard noise transformers presently in use at the East Beverly substation (Tr. at 89-90). In addition, the sound survey indicated that, following the proposed substation upgrade, the overall noise level emanating from the East Beverly substation would be less noticeable, although it would still be noticeable at times in the surrounding community (DPU-RR-3, at 6).

The Company indicated that the results of the sound survey demonstrate compliance of the existing substation with the Massachusetts Department of Environmental Protection Noise Guidelines¹⁷ and added that continued compliance is anticipated

¹⁷ The sound survey stated that the Massachusetts Department of Environmental Protection has issued guidelines that limit the level of industrial noise in residential areas as follows: (1) not to increase the residual ambient sound level by more than 10 dBA; and (2) not to produce a pure tone condition where the sound
(continued...)

following the proposed substation upgrade (id. at 2).

4. Visual

The Company stated that the proposed substation upgrade would not affect the substation's appearance because it would only replace the two 25 MVA transformers at the substation (Exh. DPU-3, att.; Tr. at 40-41). The Company stated that although the existing sound barrier inside the substation fence would be removed during construction, it would be returned to approximately the same location upon completion of the proposed substation upgrade (id.).

The Company provided a landscaping plan designed to reduce aesthetic and noise impacts of the East Beverly substation for the benefit of the nearest abutters (DPU-RR-4).¹⁸ NEPCo stated that the two areas to be landscaped include: (1) the top of a natural berm

¹⁷(...continued)

pressure level in one octave band exceeds the levels in the two adjacent octave bands by 3 dB or more (DPU-RR-3, at A-4). The sound survey defined the residual ambient sound level as the sound level which is exceeded 90 percent of the time for the period under consideration (id. at A-5).

¹⁸ The sound survey prepared by Acentech, Inc., stated that published data and experience indicate that plantings typically provide little useful reduction of transformer noise, unless the plantings are dense with leaves or evergreens, have significant height, extend to the ground (or include ground-level shrubs), and are at least 75 feet to 100 feet in depth (DPU-RR-3, at 6). Here, the record indicates that the depth of the proposed plantings between the substation and the three residences ranges from 10 to 20 feet (DPU-RR-4).

located on the substation side of the driveway leading to the rear gate and bounded westerly by the driveway leading to the side gate, an area 100 feet long and 20 feet wide (2,000 square feet); and (2) the right side of the front entrance gate to the substation, an area 50 feet long and 10 feet wide (500 square feet) (id.). The Company's landscaping plan includes 50 trees and 50 shrubs with heights ranging from two to seven feet and spaced at five foot intervals (id.).¹⁹ The 2,000 square-foot area would contain 80 of the various plants, while the 500 square-foot area would contain 20 plantings (id.). In addition, NEPCo stated that it would improve the substation appearance as viewed from one of the abutting properties by weaving a synthetic material resembling an evergreen hedge²⁰ through the fence and gate on the westerly side of the substation (id.).

5. Other

In his testimony, Mr. Goldgaber stated that during preliminary

¹⁹ NEPCo stated that the trees would consist of (a) 25 eastern red cedars, five to six feet in height, and (b) 25 austrian pines, six to seven feet in height (DPU-RR-4). NEPCo further stated that the shrubs would consist of (a) 20 rosebay rhododendruns, four to five feet in height, (b) 15 mountain laurels, four to five feet in height, and (c) 15 winterberry hollies, two to three feet in height (id.). NEPCo added that all of the proposed plantings are evergreens (id.).

²⁰ NEPCo provided a brochure from American Permahedge, the manufacturer of the synthetic evergreen hedge material (DPU-RR-4, attach.).

engineering for the proposed substation upgrade it was discovered that one of the 25 MVA transformers had leaked insulating fluid into the ground (Tr. at 22-23). Mr. Goldgaber added that the Company is investigating the leak, and will clean up the affected area in accordance with applicable environmental regulations (id.). Mr. Goldgaber stated that new foundations would be required for the proposed 50 MVA transformers because the proposed 50 MVA transformers are larger than the transformers to be replaced (id. at 20-21). Mr. Goldgaber further stated that an oil containment apparatus would be installed under the new 50 MVA transformers and around their foundations that would allow rainwater to pass while blocking any transformer insulating fluid that might leak (id. at 23).

V. ANALYSIS AND FINDINGS

NEPCo is an electric company as defined by G.L. c. 164, § 1, authorized to generate, distribute and sell electricity, and a public service corporation under G.L. c. 40A, § 3. New England Power Company, D.P.U. 92-278/279/280, at 2 (1994). Accordingly, the Company is authorized to petition the Department for the determinations sought under G.L. c. 40A, § 3, in this proceeding.

G.L. c. 40A, § 3, authorizes the Department to grant to public service corporations exemptions from local zoning ordinances or by-laws if the Department determines that the exemption is required and

finds that the present or proposed use of the land or structure is reasonably necessary for the convenience or welfare of the public. With respect to the Company's petition pursuant to G.L. c. 40A, § 3, as discussed in Section I, supra, the Company seeks exemptions from the operation of sections 29-9C and 29-27C of the zoning ordinance of the City of Beverly. Based on its review of these sections of the ordinance, the Department concludes that these sections of this ordinance could impede construction and implementation of the Company's proposed substation upgrade. Therefore, the Department finds that the Company's proposed substation upgrade requires the petitioned exemptions from the operation of sections 29-9C and 29-27C of the zoning ordinance of the City of Beverly.

Next, under G.L. c. 40A, § 3, the Department examines whether the Company's proposed use of the land and structures as set forth in its petition is reasonably necessary for the convenience or welfare of the public. The record indicates that the proposed upgrade of the East Beverly substation will significantly improve NEPCo's ability to reliably meet the demand requirements of the Beverly and Cape Ann service area. In addition, the record indicates that NEPCo evaluated reasonable alternatives to the proposed project in the process of developing a strategy to supply its service territory with a reliable and efficient supply of electric power.

The record also indicates that the Company has considered possible environmental and land use impacts of the proposed East Beverly substation upgrade that may be of concern to the surrounding community, including construction and traffic, EMF, noise, and possible ground pollution impacts. The Department finds that because NEPCo is not proposing to change any of the present transmission or distribution voltage levels at the East Beverly substation, there would be no expected changes in the level of any related proximity electric fields. The record further indicates that, although the proposed substation upgrade is likely to have negligible visual impact on the surrounding community, the Company has nonetheless developed a significant landscaping plan to help screen the East Beverly substation as viewed from its three closest abutters. Finally, the Company has stated that it will enact a number of mitigation measures, including:

- (1) confining construction activities at the substation to normal working hours whenever possible;
- (2) configuring substation components to ensure the maximum amount of practical noise reduction following the upgrade, including the use of two replacement transformers with sound level ratings 15 dB below the standard level of such devices;
- (3) use of landscaping, including trees, shrubs and chain link fence coverings to help screen the substation as viewed from abutting properties; and
- (4) the use of transformer cooling fluid

collection devices under the new 50 MVA transformers to prevent soil contamination.

Thus, with implementation of the mitigation measures proposed by the Company supra, and those required in Section VI, infra, the Department finds that the general public interest in upgrading NEPCo's East Beverly substation to supply electric power to the City of Beverly and the surrounding community outweighs the minimal impacts of the Company's proposed project on the local community. Accordingly, the Department, pursuant to G.L. c. 40A, § 3, finds that the proposed substation upgrade and related facilities, including the modifications to existing transmission facilities, are reasonably necessary for the convenience or welfare of the public.

VI. ORDER

Accordingly, after due notice, hearing and consideration, it is hereby

ORDERED: That the Company's petition be allowed and that the proposed substation upgrade and related facilities, as described in the Company's exhibits on file with the Department, be exempt from the operation of the following sections of the zoning ordinance of the City of Beverly, pursuant to G.L. c. 40A, § 3, to the extent that the upgrade

and related facilities are used for electric power transmission purposes:

Chapter 29 of the Code of the City of Beverly, Section 29-9C, page 30; and Chapter 29 of the Code of the City of Beverly, Section 29-27C, pages 106-107; and it is

FURTHER ORDERED: That the Company shall comply with the following requirements:

(1) That the Company shall implement all mitigation measures proposed by the Company in this proceeding;

(2) That the Company shall take all necessary measures to ensure that, upon completion of the proposed construction, the East Beverly substation site is clear of all construction debris, including any site preparation and excavation debris;

(3) That the Company shall take all necessary measures to preclude unauthorized entry into the East Beverly substation, both during and after construction hours;

(4) That the Company shall take all necessary measures to ensure that any disruptions to local traffic, due to the construction at the East Beverly substation, are minimized to the greatest extent possible; and

(5) That the Company shall take all necessary measures to ensure that construction equipment and materials do not arrive at the East Beverly substation site before 7 a.m. on any day; and it is

FURTHER ORDERED: That the Company shall obtain all other

governmental approvals necessary for this project before its construction commences; and it is

FURTHER ORDERED: That the Secretary of the Department shall transmit a certified copy of this Order to the Clerk of the City of Beverly; and that New England Power Company shall serve a copy of this Order upon the Conservation Commission, Planning Board, and City Council of the City of Beverly within five business days of its issuance and shall certify to the Secretary of the Department within ten business days of its issuance that such service has been accomplished.

By Order of the Department,

Kenneth Gordon, Chairman

Barbara Kates-Garnick,

Commissioner

Mary Clark Webster,

Commissioner

Appeal as to matters of law from any final decision, order or ruling of the Commission may be taken to the Supreme Judicial Court by an aggrieved party in interest by the filing of a written petition praying that the Order of the Commission be modified or set aside in whole or in part.

Such petition for appeal shall be filed with the Secretary of the Commission within twenty days after the date of service of the decision, order or ruling of the Commission, or within such further time as the Commission may allow upon request filed prior to the expiration of twenty days after the date of service of said decision, order or ruling. Within ten days after such petition has been filed, the appealing party shall enter the appeal in the Supreme Judicial Court sitting in Suffolk County by filing a copy thereof with the Clerk of said Court. (Sec. 5, Chapter 25, G.L. Ter. Ed., as most recently amended by Chapter 485 of the Acts of 1971).